ACC NR: AP6036946 SOURCE CODE: UR/0233/66/000/003/0057/0061

AUTHORS: Gadzhiyev, S. N.; Chebotarev, V. N.; Namazov, F. A.; Nagdaliyeva, Yu. R.; Azizov, T. Kh.; Agarunov, M. Ya.

ORG: none

TITLE: Physicochemical investigation of organosilicon compounds. 1. Enthalpy of formation of some methylchlorosilanes

SOURCE: AN AzerbSSR. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, no. 3, 1966, 57-61

TOPIC TAGS: standard enthalpy, calorimeter, calorimetry, chlorinated aliphatic compound, silane, organosilicon compound

ABSTRACT: The standard enthalpies of formation (at 25C) of trimethylchlorosilane, dimethyldichlorosilane, and methyltrichlorosilane were determined. The investigation is an extension of earlier published work by S. N. Gadzhiyev and M. Ya. Agarunov (Zh. fiz. khimii, 39, 239, 1965). The experimental procedure followed is described by S. N. Gadzhiyev and K. A. Sharifov (Izv. AN Azerb. SSR, seriya fiz-tekh i matem. nauk, 1962, No. 1). The calorimeter used is described by M. P. Kozina (Diss. MGU, 1955). A schematic of the calorimeter is presented. The physical properties of the materials investigated and the experimentally measured enthalpies of formation are tabulated. It was found that the standard enthalpy of formation at 25C for trimethylchlorosilane

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ACC NR: AP6036946

was -80.0 ± 4.5 kcal/mole, for dimethyldichlorosilane -104.8 ± 5.0 kcal/mole, and for methyltrichlorosilane -150.5 ± 10.0 kcal/mole. Orig. art. has: 2 tables and 2 graphs.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 008

Card 2/2

NAGDASEVA, A.I.

Vicarious hemorrhage from the eyes. Vest. oft. 33 no.4:37-39 Jl-Ag '54. (MLRA 7:8)

1. Iz glaznoy kliniki (dir. prof. E.A.Pletneva) II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(EYE, hemorrhage, *vicarious)
(HEMORRHAGE, *eye, vicarious hemorrh.)

MAGDASEVA, A.I., kandidat meditsinskikh nauk

Vascular permeability of the eye in glaucoma. Vest.oft. 69 no.2: 33-36 Mr-Ap '56. (MLRA 9:7)

1. Iz glaznoy kliniki (dir.--prof. N.A.Pletneva) II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(GLAUCOMA, physiol.
vasc. permeability of eye)
(BLOOD VESSELS, physiol
permeability in glaucoma)
(EYE, blood supply
vasc. permeability in glaucoma)

NAGDASEVA, A.I.

Role of BCG vaccine in immunity of the eye; experimental study. (MIRA 14:1)
Vest. oft. 73 no. 3:4-8 My-Je '60.
(BCG VACCINATION) (EYE)

NAGDASEVA, A.I.; SAVITSKAYA, N.F.

Intermedin in ophthalmology. Vest. oft. 73 no. 4:35-36 Jl-Ag '60. (MIRA 14:1)

(PITUITARY BODY—SECRETION)
(EYE—DISEASES AND DEFECTS)

NAGDASEVA, A.I., dotsent; CHERNIKOVA, L.P.; GRACHEVA, N.P., kand.med.nauk

Influence of mycerin on disinfection of the conjunctival sac. (MIRA 14:9)
Vest.oft. no.3:33-35 '61.

1. Glaznaya kliniki II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova (zav. kafedroy - prof. N.A. Pletneva) II otdela infektsionnoy patologii i eksperimental'noy terapii infektsii Instituta epidemiologii i mikrobiologii imeni pochetnogo akad. N.F. Gamaleĭ AMN SSSR.
(CONJUNCTIVA) (ANTIBIOTICS)

NAGDASEVA, A. I., dotsent

Histochemical reactions of the eye to the administration of BCG vaccine and Alt tuberculin. Vest. oft. no.2:30-35 '62. (MIRA 15:4)

1. Klinika glaznykh bolezney (zav. kafedroy - prof. N. A. Pletneva) II Moskovskogo meditsinskogo instituta imeni N. I. Pirogova.

(TUBERCULIN--TESTING) (BCG VACCINATION (EYE)

NAGDASEVA, I.P., inzhener.

The adoption of ATT-120 looms. Tekst.prom. 15 no.11:29-31 N '55. (MLRA 9:1)

(Looms)

SOV/138-58-6-5/25

AUTHORS: Nagdaseva, I.P., Yaminskaya, Ye. Ya., and Spirin, A.P.

TITLE: The use of Semiconductors for Measuring the Temperature developed in Tire Cords (Primeneniye poluprovodnikovykh datchikov dlya zamera temperatury v nityakh korda)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 6, pp 17 - 20 (USSR)

ABSTRACT: Both the rubber and the cord in tires undergo deformation which is accompanied by the formation of heat, and the temperature of the tire tread reaches 80 - 120°C. The increase in the formation of heat is one of the main reasons for the premature deterioration of the tires. The evaluation of the capacity of heat formation of the materials is, therefore, of great importance. An apparatus was constructed for measuring the temperature in the cord fibres by a contactless convection method using thermistors. These thermistors were made from a mixture of manganese oxide and cobaltic hydroxide; their main advantage lies in the fact that they have a large negative temperature coefficient of resistance amounting to -3 to -6% for 1°C change in ambient temperature. With increasing temperatures, the coefficient of resistance decreases.

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The use of Semiconductors for Measuring the Temperature Developed in Tire Cords

The thermistors can be made with high ohmic resistance. The thermistors used in this experiment had a resistance of the order of 40,000 ohms. Fig 1 shows the circuit of an apparatus which can be used in two temperature ranges: from 20° - 70°C and from 70° - 120°C. In this method the thermistors react to the changes of temperature in the cord. The surface of the thermistors turned towards the cord is very small (1.5 mm^2), and radiation emission of the cord during its deformation plays little part when measuring the temperature of the cord. The thermistors have no direct contact with the cord. Fig 2 shows a graph for the interpretation of results between 20° and 70°C at different room temperatures. Accuracy of the apparatus is ± 3%. Fig 3 gives a photograph of the apparatus. It was tested for periods of 1 week, 3 months and 6 months, and gave accurate results within the temperature limits 20° - 120°C. Heat formation in the cord was measured on a 24 strand test machine, constructed by A.S. Smachkov of NIIShP, for testing the endurance of tire cords by

The use of Semiconductors for Measuring the Temperature Developed in Tire Cords

repeated tensile deformation. The strands are stretched and relaxed to a sinusoidal load pattern, as depicted in Fig 4, and at a frequency of 616 cycles per minute. The actual loads to which the strands were subjected were checked with strain gauges. The load pattern, depicted, has equal time of loading and unloading. Tests were also made with a load pattern where the time of loading (0.0973 secs) was approximately half the time of unloading (0.0603 secs). The table shows the endurance and the temperatures attained with these two regimes. With symmetrical loading, the strands endured over one million cycles, and their temperature stabilized at 42° C. With the other load regime, the strands failed at 7369 cycles, and attained a maximum temperature of 84.5°C. The strands were of Kapron (Nylon). Fig 5 shows how

The use of Semiconductors for Measuring the Temperature Developed in Tire Cords

temperature stabilizes fairly quickly. The lower curve is for the symmetrical load regime. After 10 minutes endurance test with the symmetrical load regime the strands had stretched 3.2 mm, and in the same time with the other regime the strands stretched 7.8 mm.

There are 5 figures and 1 table

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Research Institute for the Tire Industry)

1. Tires--Temperature factors 2. Temperature--Measurement
3. Semiconductors--Application

NAGDASEVA, I.P.

Third conference of the Workers' Group on viscose and synthetic cord. Kauch.i rez. 19 no.2:51-52 F '60.
(MIRA13:6)

(Textile fibers, Synthetic--Congresses)

S/183/60/000/005/005/007
B028/B054

AUTHORS: Berestnev, V. A., Nagdaseva, I. P., Serebryakova, Z. G.

TITLE: Effect of the Type of Lubricating Preparations on Properties of Caprone Cord

PERIODICAL: Khimicheskiye volokna, 1960, No. 5, pp. 24-26

TEXT: The present paper deals with the treatment of caprone fiber with lubricants which contain no surface-active substances and, thus, do not reduce its strength. The authors tested as lubricants for caprone fiber: Velosit (a mixture of saturated hydrocarbons), preparation OC-20 (OS-20), egalizer A, and Avirol'. The following data were obtained:

Lubricant	Lubricant content in the fiber, %	Strength kg	Breaking elongation, %	Fatigue strength, 1000 cycles
Velosit	0.80	15.4	24.2	147
OS-20	0.85	15.6	27.5	133
egalizer A	0.88	15.7	23.0	101
Avirol'	0.80	15.3	24.7	159

In spite of the good fatigue strength attained with Avirol', this

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Effect of the Type of Lubricating Preparations on Properties of Caprone Cord

S/183/60/000/005/005/007
B028/B054

preparation had the disadvantage of poor adhesion to rubber. It was 30% lower than in Velosit which showed the best values. The latter is, therefore, recommended as lubricant. The heat resistance of caprone cord was independent of the type of lubricant. There are 2 figures, 1 table, and 8 references: 7 Soviet and 1 US.

ASSOCIATION: NIISHP (Scientific Research Institute of the Tire Industry): Berestnev, V. A., Nagdaseva, I. P.
VNIIV (All-Union Scientific Research Institute of Synthetic Fibers): Serebryakova, Z. G.

Card 2/2

S/138/60/000/006/[illegible]
A051/A029

AUTHORS: Kozyreva, Z.M., Nagdaseva, I.P., Yaminskaya, Ye.Ya.

TITLE: Resistance of Cord to Repeated Stretching Deformations on the ВДР-1 (VDR-1) Apparatus

PERIODICAL: Kauchuk i Rezina, 1960, No. 6, pp. 30 - 34.

TEXT: The VDR-1 apparatus (Fig. 1) is used for the testing of individual cord fibers under the action of cyclic stretching loads. It was manufactured at the "Metallist" plant according to the NIIShP model designed by A.S. Skachkov. A detailed outline of the component parts in addition to a description of their coordination is given. This instrument ensures results comparable to those of the tread performance. Data are obtained of the effects of temperature and loads on the cord resistance to repeated stretching deformations. Measurements carried out under laboratory conditions showed that in the deformation of the cord fibers in the top layer of the tread at the same depth depression of the block and at an equal internal pressure the caprone cord fibers in the tread are deformed by

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Card 1/2

Card

ORLOVA, A.V.; NAGDASEVA, I.P.

Changes occurring in the microscopic structure of polyethyleneterephthalate fibers during heating. Vysokom.soed. 3 no.7:953-955 Jl '61. (MIRA 14:6)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti.
(Textile fibers, Synthetic) (Terephthalic acid)

155540

26438
S/183/61/000/004/001/002
B101/B206

AUTHORS: Berestnev, V. A., Nagdaseva, I. P., Pogorelko, A. N., Kargin, V. A.

TITLE: Increase of thermostability of caprone fiber

PERIODICAL: Khimicheskiye volokna, no 4, 1961, 26 - 28

TEXT: The authors discuss the increase of thermostability of caprone fiber by oxidation inhibitors. Since an addition of such substances to the initial polymer might impair its mechanical properties, the authors think it more convenient to apply such inhibitors on the finished fiber as a protective coat. In this case, the process may be combined with others such as impregnation or dyeing. The authors report on the treatment of caprone fiber with aqueous solutions of metal salts. Caprone cord of the type 14K (14K) was used for tests. It was immersed in the salt solution for 5 - 8 sec, and then dried for 5 min at 115 - 120°C. Cord fabric was immersed for the same time in the salt solution, and dried for 5 min at 132 - 136°C. In a combination with impregnation by latex emulsion, the metal salts were directly dissolved in the impregnation solution if

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Increase of thermostability...

the latter was acidic. If it was alkaline, the cord was first treated with the salt solution, then with the impregnation solution. After this treatment the cord fibers were heated for 100 hr at 150°C with 2 kg load, and tensile strength as well as breaking elongation were measured. Table 1 gives the results. Since a mixture of $CdCl_2$ and $CuCl_2$ showed the best effect, experiments followed with: (1) 0.035% $CuCl_2$ + 0 065% $CdCl_2$; (2) ditto plus impregnation solution of the type PU-40 (RSh-40); (3) 0.1% $CuCl_2$ + 0.1% $CdCl_2$; (4) ditto plus RSh-40; (5) 0.03% $CuCl_2$ + $CdCl_2$ plus impregnation solution on resin-89 basis. Results: (a) The unheated fiber had a tensile strength of about 15.20 kg and an elongation of 27.3 - 32.9%; (b) the heated, untreated fiber had a tensile strength of 3.1 - 3.28 kg and an elongation of about 6.4%; (c) treatment with the solutions mentioned produced a tensile strength increase of the heated fiber to 11.46 - 14.49 kg, and an elongation increase to 15.8 - 18.34%. The authors point out that this surface treatment is only effective for thin fabrics exposed to oxygen, but not for heavy products such as tires. Treatment of the fibers with H_2S and microscopic investigation (conducted by Ye. S Alekseyeva)

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Increase of thermostability...

showed that the fibers were covered only on the surface by metal sulfides. Therefore, this surface treatment of the fibers with metal chlorides protects the surface against oxidation, and does not change the other mechanical properties of the fiber. There are 2 figures, 2 tables, and 6 Soviet-bloc references.

ASSOCIATION: NIIShP (V. A. Berestnev, I. P. Nagdaseva, A. N. Pogorelko); NIFKhI im. L. Ya. Karpova (NIFKhI imeni L. Ya. Karpov) (V. A. Kargin)

S/138/61/000/005/006/006
A051/A129

AUTHORS: Yashunskaya, F. I., Berestnev, V. A., Nagdaseva, I. P.

TITLE: A creative discussion on the perfecting of chemical fibers used in the rubber industry

PERIODICAL: Kauchuk i rezina, no. 5, 1961, 54 - 55

TEXT: The discussion which took place on February 20 - 22, 1961, was organized by the Central Board of the VKhO im. D. I. Mendeleyev, Sections for Rubber and Chemical Fibers, the scientific research institutes VNIIV and NIIShP and by the local organizations of the VKhO im. D. I. Mendeleyev at NIIShP. V. V. Krashak, corresponding member of the USSR Academy of Sciences, spoke on the synthesis of new polymers. Some of the most promising new methods of polymer synthesis were given as follows: 1) stereospecific polymerization, 2) grafting and block-copolymerization, 3) cyclopolymerization of non-conjugated diene hydrocarbons, 4) dehydration and recombined polymerization, 5) polycondensation on the interface of phases as a chemical method of direct formation of the ready fiber, 6) hydrolytic polymerization, 7) polycoordination using complex compounds with metals, such as beryllium, obtaining claw-type polymers. Professor N. V. Mikhaylov dedicated his

Card 1/3

A creative discussion on the perfecting of...

paper to the characteristics of the most important tasks and directions of scientific development, especially physics and physical chemistry, in the field of polymer fibers. The properties of these fibers include elastomer fibers with an average module, elastic properties, thermal characteristics, non-reversible losses when heated, the molecular weight and the fractional composition. V. A. Kargin and N. V. Mikhaylov calculated the theoretical stability of the maximum-orientated cellulose fibers, which showed values of 300 kg/mm^2, or about 200 km of breaking length. This theoretical computation is apparently true to some approximation for chemical fibers of any composition. Strength indices have been reached in the laboratories equalling half of the assumed theoretical limit. V. F. Yevstratov spoke on the demands placed on the future cord for tires. The demands on future fabrics for the production of rubber articles were discussed by S. Ye. Strusevich. The use of conveyor belts, flat and edge-type belts in production will increase the durability of articles. Fabrics or threads made of high-index fibers, such as polyether and fortisan, are considered to be advantageous. Hydrate cellulose fibers are included in this group. Of the polyamide fibers tested, anide and enant were found to be the most suitable for the rubber article industry. Fluorine-containing special fibers are necessary for heat-resistant articles for temperatures reaching

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A creative discussion on the perfecting of...

300°C and more. A discussion was held with respect to the papers presented in which 17 representatives of various scientific organizations and plants in different cities participated. Lyubimova of the Nauchno-issledovatel'skiy institut bumagi (Scientific Research Institute of Paper) (VNIIB) spoke on the methods for improving the quality of cellulose used in the production of viscose fibers of high modules. Epshteyn spoke on the experimental cordless tires, in which the rubber-resin formulations based on the combinations of high-styrene, aniline-formaldehyde or other resins, serve as reinforcing layers. N. N. Lin'kov and I. I. Seleznev supplemented the paper by V. F. Yevstratov by analyzing the functioning of the cord thread in the tire. The elongation of the cord thread by 16 - 20% is considered to be the optimum for tires, but the specific indices are determined by the type of road and the material of the cord thread. F. I. Yashunskaya stated precisely the demands placed on the cord threads. F. F. Badenkov reported that the volume of scientific research work in the field of perfecting the fibers for tire cord lags behind the demands for increasing the quality of the tires.

Card 3/3

DUBOVA, L.S.; BERESTNEV, V.A.; NAGLASEVA, I.P.; Prinimali uchastiye: ALEKSEYEVA, Ye.S.; PRYAMIKOVA, T.S.

Studying the double refraction of some polyamide fibers. (MIRA 17:10)
Khim.volok. no.5:52-55 '64.

1. Nauchno-issledovatel'skiy institut shveynoy promyshlennosti.

NAGDASEVA, I.P.

Fourth meeting of the Working Group on viscous cord. Kauch. i rez. 20 no.9:60-63 S '61. (MIRA 15:2)
(Tire fabrics)

BERESTNEV, V.A., NAGDASEVA, I.P., LYTKINA, M.B., SULEYMANOVA, Z.I.
ORLOVA, A.V., DUBOVA, L.S.

Study of the relationship between mechanical properties and structure of cord fibers.

Report presented at the 13th Conference on high molecular compounds Moscow, 8-11 Oct, 62

S/138/62/000/009/002/002
A051/A126

AUTHORS: Nazdaseva, I.P., Berestnev, V.A., Kozyreva, Z.M.

TITLE: Cord properties of polyenantamide fiber

PERIODICAL: Kauchuk i rezina, no. 9. 1962, 40 - 43

TEXT: The physico-mechanical properties of polyenantamide cord were studied on two batches: no. 1 (1959 production) and no. 2 (1960 production) by comparing them to serial capron cord. Static and dynamic methods of determination were used; tensile strength under repeated expansion was tested on a ВДР-1 (VDR-1) machine, under a static load of 4.5 kg, deformation amplitude of 4.8%, and temperature of 130°C. The Goodrich-type instrument was used to determine the tensile strength at repeated deformations by expansion-compression. The enant cord (batch no. 2) was found to be close to serial capron cord in most of its properties. It is somewhat superior to capron in expansion-compression at high deformation amplitudes. Temperature resistance of both tested cord batches is equal to that of serial capron cord. The heat resistance of the cord is thought to be affected by oxidation products of the low-molecular admixtures in

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Cord properties of polyenantamide fiber

S/138/62/000/009/002/002
A051/A126

the fiber polymer. Obtained test results on the physico-mechanical properties and the structure of the fiber showed that the quality of the second batch of enant fiber is higher than the first. The authors assume a relation between certain structural features of the fibers and the mechanical properties. The mechanical properties of polyamide fiber seem to be determined not by the orientation of the elements of the molecular structure, but rather by the arrangement of other structural elements, possibly certain secondary structural formations. This assumption is proven true by the fact that fiber destruction is determined by the development of macro-defects in it. There are 5 figures and 1 table.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

Card 2/2

S/190/63/005/002/002/024
B101/B102

AUTHORS: Korshak, V. V., Mozz[illegible], Snkolina, M. A., Nagdaseva, T. F., Bel[illegible], T. A.

TITLE: Synthesis of graft [illegible]. XII

PERIODICAL: Vysokomolekulyarnyye [illegible], v. 5, no. 2, 1963, 171-175

TEXT: Tests are discussed in reference to the grafting of acrylic and methacrylic acids onto caprone fiber at room temperature and the stabilization of the graft copolymer by metal salts. Commercial caprone threads with Schopper strength 14.3 kg were heated at 80-120°C and then immersed for a short time in anhydrous acrylic or methacrylic acid at room temperature. This mild treatment, chosen because of the sensitivity of the polyamide to acids, yielded only a thin [illegible] film on the fiber, so the grafting could not be determined from the increase in weight of the fiber. In the threads of graft copolymer, the strength was considerably reduced after 100 hrs heating at 150°C; the highest value was 38% residual strength. Treatment of the threads of graft copolymers for several hours with 2.5-5%

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Synthesis of graft copolymers. XII

S/190/63/005/002/002/024
B101/B102

solutions of cadmium, magnesium, zinc, ... manese or copper acetate showed that with copper acetate the residual strength was still 95% after 100 hrs at 150°C. The threads were colored pale blue and Cu^{2+} could be identified qualitatively. The films consisting of the copper salt of polyacrylic or polymethacrylic acid protect the fibers from heat. There are 4 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: July 21, 1961

Card 2/2

KOZYREVA, Z.M.; NAGDASEVA, I.P.; BROVKINA, N.A.

Studying the properties of some types of cord fabrics during one-time and repeated stretching. Kauch. i rez. 22 no.9: 38-41 S '63. (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti.

S/0183/64/000/002/0035/0041

ACCESSION NR: AP4027715

AUTHOR: Berestnev, V. A.; Nazdaseva, I. P.; Kozyreva, Z. M.; Tokareva, L. G.; Potemkina, Z. I.; Mikhaylov, N. V.; Kargin, V.A.

TITLE: The effect of heat stabilizers on the structure of capron fiber.

SOURCE: Khimicheskiye volokna, no. 2, 1964, 35-41

TOPIC TAGS: Capron fiber, structure, heat stabilizer, mechanical property, capron cord, morphology, heat treatment, elongation, polymer destruction, thermooxidative destruction, oxidation inhibitor, electron microscope, polarized microscope, fiber forming, fiber drawing, stabilizer polyamide bond, stabilization mechanism

ABSTRACT: The morphological character of capron fiber and the mechanical properties of capron cord stabilized with N, N'-di-beta-naphthy l-p-phenylenediamine (DNFDA) were investigated. Studies showed that heat treatment at 20-140C had little effect on the strength of the cord (34.5/4 x 2 and 10.7/1 x 2). On prolonged heating at elevated temperatures the strength of the stabilized fiber did not change significantly while the unstabilized fiber strength was reduced drastically. Heating under nonoxidizing conditions did not produce significant

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ACCESSION NR: AP4027715

differences in the properties of the stabilized and unstabilized materials. Thus the deterioration of properties in the unstabilized fiber is attributed to thermo-oxidative destruction of the polymer. The oxidation inhibition by DNFDA is futher illustrated by the higher dynamic properties of stabilized fibers. The structure of the fibers was examined with polarized and electron microscopes; photographs are included. The unstabilized capron fiber has a coarse macrostructure within the fiber which is absent at the surface of the fiber. By adding a small amount of stabilizer (0.5%) to the monomer melt, a fiber is obtained which has fine-dimensioned anisodiametric supermolecular macroformations and coarse oriented particles in the core and spherulite type structures in the surface. Based on these observations, it is proposed that self-reinforcement is clearly manifested and its influence on the properties of the stabilized capron fiber is shown. The physico-mechanical properties of the unstabilized capron cord extracted with acetone were reduced with continued heating (strength reduced by 2/3, elongation by 1/2) at 150C for 150 hours. The reduction in strength of the extracted and of unextracted stabilized capron cord was only about 1/4 while there was actually a slight improvement in the elongation. This led to the assumption that there is a strong bond between the stabilized molecules and the polyamide which affects

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ACCESSION NR: AP4027715

the formation and growth of the supermolecular structure upon forming and drawing the fiber. A complex mechanism is proposed for the stabilization of the physical-mechanical properties at high temperatures and dynamic deformation: this mechanism is based on the association of the inhibition of thermochemical destruction of the polymer and on the stabilization of the fine-dimensioned supermolecular structure in the process of breaking down the fibrous materials. "Electron-microscopic data were obtained jointly with K. Kh. Razikov" "Authors express sincere appreciation to A. V. Orlov and K. Kj. Razikov for help in obtaining experimental data." Orig. art. has: 5 tables and 8 figures.

ASSOCIATION: NIIShP; VNIIV; Institut im. Karpova

SUBMITTED: 04Dec62 DATE ACQ: 22Apr64 ENCL: 00

SUB CODE: CH, MA No. REF. SOV: 018 OTHER: 001

Card 3/3

[illegible], [illegible]; [illegible], [illegible]; [illegible], L.A.

[illegible] characteristics of some designs of metallic tire cord. (MIRA 17:5)
Kauch. i rez. 23 no. [illegible] Mr '64.

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i Beloretskiy metallurgicheskiy kombinat.

KOZYREVA, Zoya Mikhaylovna; NAGDASEVA, Inna Pavlovna; PISKAREV, Ivan Vasil'yevich; CHARUKHIN, Ivan Gavrilovich; YAMINSKAYA, Yelizaveta Yakovlevna; KUKIN, G.N., doktor tekhn. nauk, prof., retsenzent; AGADZHANOVA, I.A., red.

[Industrial fabrics and their use] Tekhnicheskie tkani i ikh primenenie. Moskva, Legkaia industriia, 1965. 251 p. (MIRA 18:9)

AUTHOR: Nagdimunov, M.N., Engineer SOV-118-58-10-12/16

TITLE: Increasing the Efficiency of Stone Cutting Machines (Povysheniye proizvoditel'nosti kamnereznykh mashin)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 10, pp 39 - 40 (USSR)

ABSTRACT: Modernization of stone-cutting machines in use in the quarries of the Azerbaydzhan SSR has increased their working speed from 18 - 24 m in 1951 to 120 - 150 m an hour in 1957. By coupling these machines, and by introducing a new method of stone cutting, labor productivity in 1957 increased 7-fold over that of 1951, and production costs were cut in half. The new method of stone cutting is described in detail. There are 4 diagrams and 1 table.

1. Rock--Production 2. Stone cutting machines--Design
3. Labor--Efficiency

Card 1/1

NAGEL, J.

Significance of the standardization of electric igniters. p.156.

SZABVANYUGYI KOZLEMENYEK. Budapest, Hungary. Vol. 11, no. 7, July 1959.

Monthly List of East European Accessions (EEAI), LC. Vol. 8, No. 9, September 1959
Unc.

ACC NR: AP6035745 (N) SOURCE CODE: UR/0413/66/000/01[illegible]/0107

INVENTOR: Nagel', L. F.; Il'in, G. S.; Svetlov, V. D.

ORG: none

TITLE: Cylindrical hydroacoustic transducer. Class 42, No. 186780

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1[illegible], 1966, 106-107

TOPIC TAGS: sonar, sonar transducer, sonar equipment, acoustic transducer, piezolectric transducer

ABSTRACT: An Author Certificate has been issued for cylindrical hydroacoustic transducer in the form of a stack of piezoceramic disks with metal-plated faces, in which radial oscillations are excited by transverse piezoeffect (see Fig. 1). To improve efficiency, keyhole slots have been cut in the disks and the leads having the same polarity are connected to a common power source. Orig. art. has: 1 figure. [WA-14]

Card 1/2 UDC: 534.232

ACC NR: AP6035745

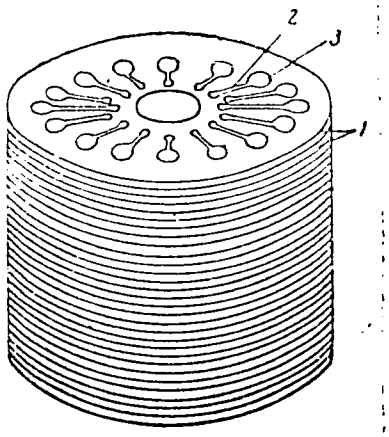


Fig. 1. Cylindrical transducer

1 - Disks; 2 - radial slots; 3 - round holes.

SUB CODE: 09/ / SUBM DATE: 29Apr62

Card 2/2

NAGEL, Michal, inz.

Electric installation techniques in modern industrial building in the German Democratic Republic. Wiad elektrotechn 32 [i.e.31] no.9:203-209 S '63.

1. Kierownik Dzialu Instalacji, Centralne Biuro Rozwojowe i Konstrukcyjne, Niemiecka Republika Demokratyczna.

KIRSCHBAUM, E., prof., dr.; NAGEL, O. V., dr. Ing.

Heat transfer analysis in circulation evaporators. Magy kem lap 19 no. 2:74-78 F '64.

1. Institut fur Apparatebau und Verfahrenstechnik, Technische Hochschule Karlsruhe.

NAGEL, V.

Electrification of the ore mine in Vernerovice.

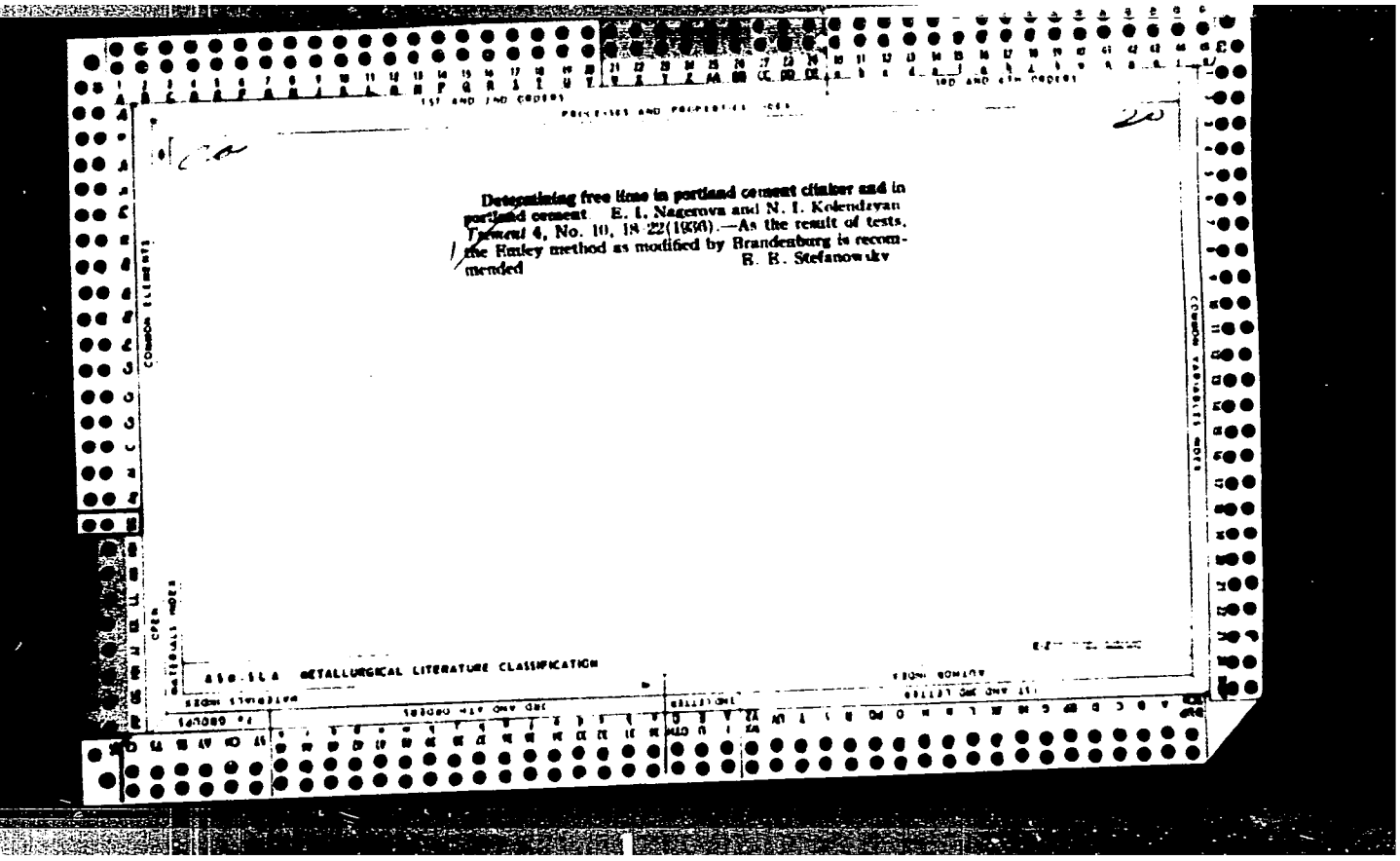
P. 236, (Rudy) Vol. 5, no. 7, July 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

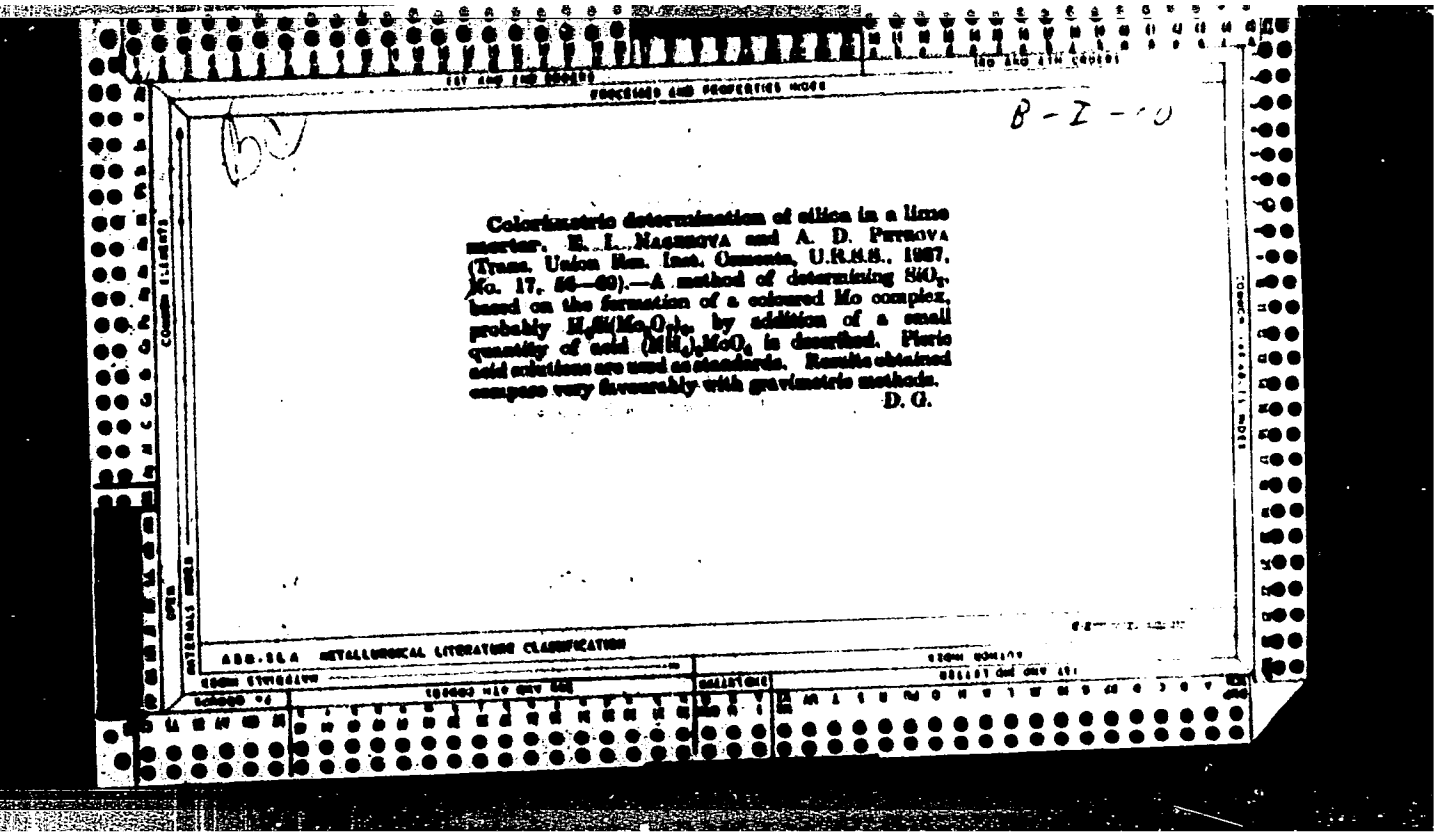
NAGERNYY, A. (Rostov-na-Donu).

Expert fire engine driver. Pozh.delo 3 no.8:22 Ag '57.
(MLRA 10:8)

(Firemen)



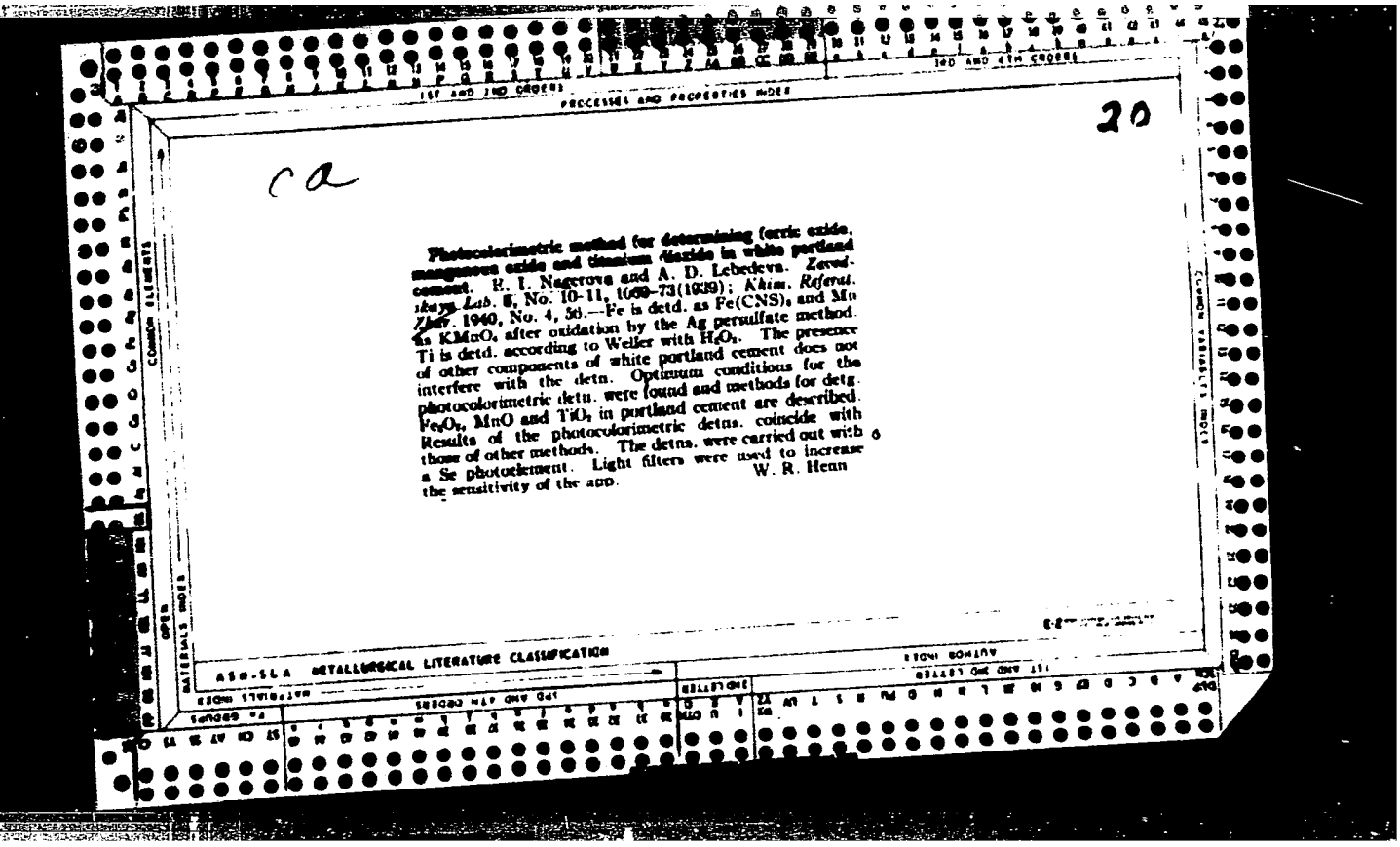
Determining free lime in portland cement clinker and in portland cement E. I. Nagerova and N. I. Kolendzyan *Tsement* 4, No. 10, 18-22(1930).—As the result of tests, the Emley method as modified by Brandenburg is recommended
E. E. Stefanowsky



B-I-10

Colorimetric determination of silica in a lime mortar. E. I. Nagmova and A. D. Petrova (Trans. Union Res. Inst. Cements, U.S.S.R., 1957, No. 17, 56—60).—A method of determining SiO_2, based on the formation of a coloured Mo complex, probably $H_4[Si(Mo_2O_7)_6]$, by addition of a small quantity of acid $(NH_4)_2MoO_4$ is described. Pieric acid solutions are used as standards. Results obtained compare very favourably with gravimetric methods.

D. G.



20

CA

Photocolorimetric method for determining ferric oxide, manganous oxide and titanium dioxide in white portland cement. R. I. Nagerova and A. D. Lebedeva. *Zavodskaya Lab.* 8, No. 10-11, 1069-73(1939); *Khim. Referat. Zhur.* 1940, No. 4, 56.—Fe is detd. as $Fe(CNS)_3$ and Mn as $KMnO_4$ after oxidation by the Ag persulfate method. Ti is detd. according to Weller with H_2O_2. The presence of other components of white portland cement does not interfere with the detn. Optimum conditions for the photocolorimetric dettn. were found and methods for detg. Fe_2O_3, MnO and TiO_2 in portland cement are described. Results of the photocolorimetric detns. coincide with those of other methods. The detns. were carried out with a Se photoelement. Light filters were used to increase the sensitivity of the app. W. R. Henn

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

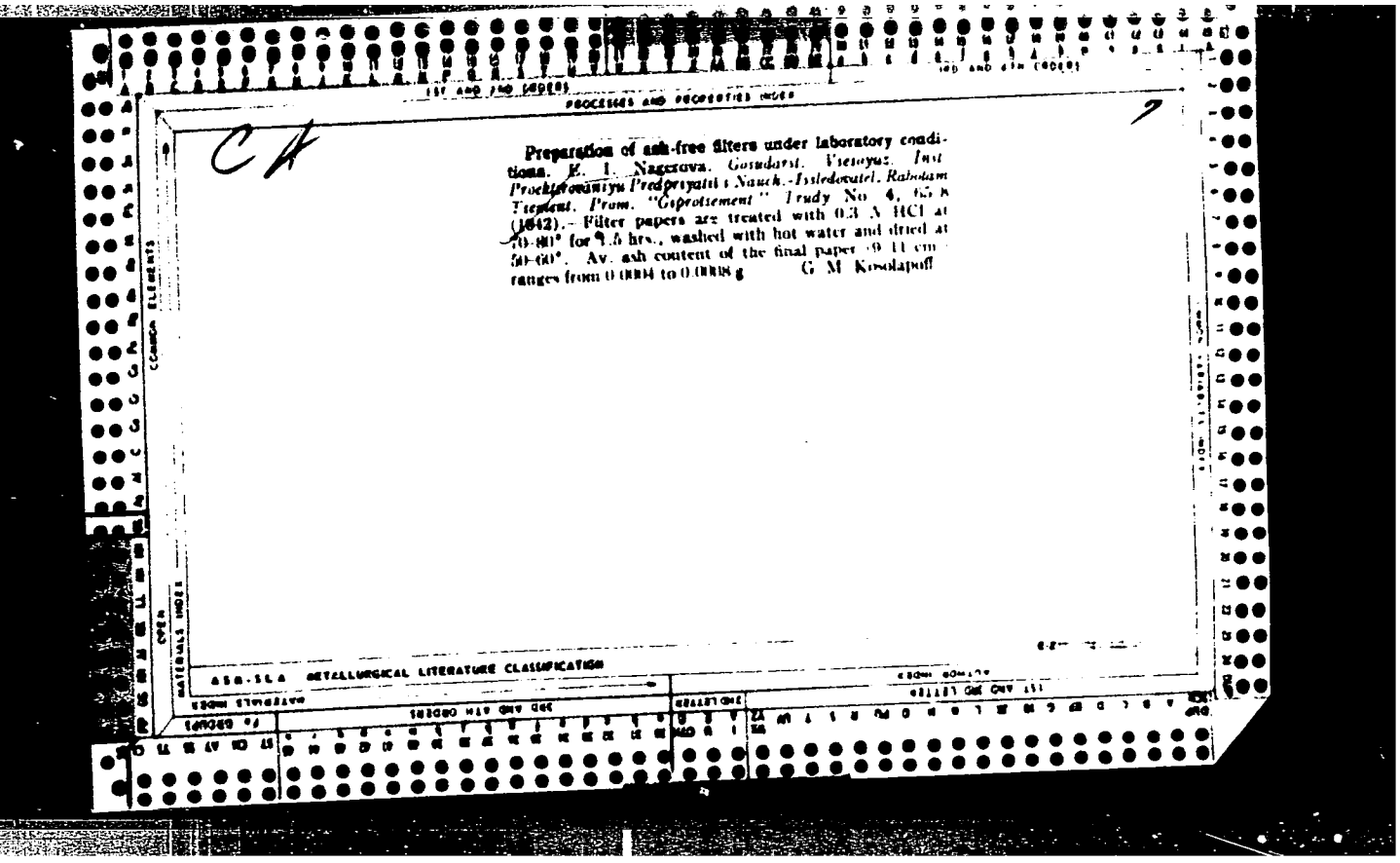
Ca

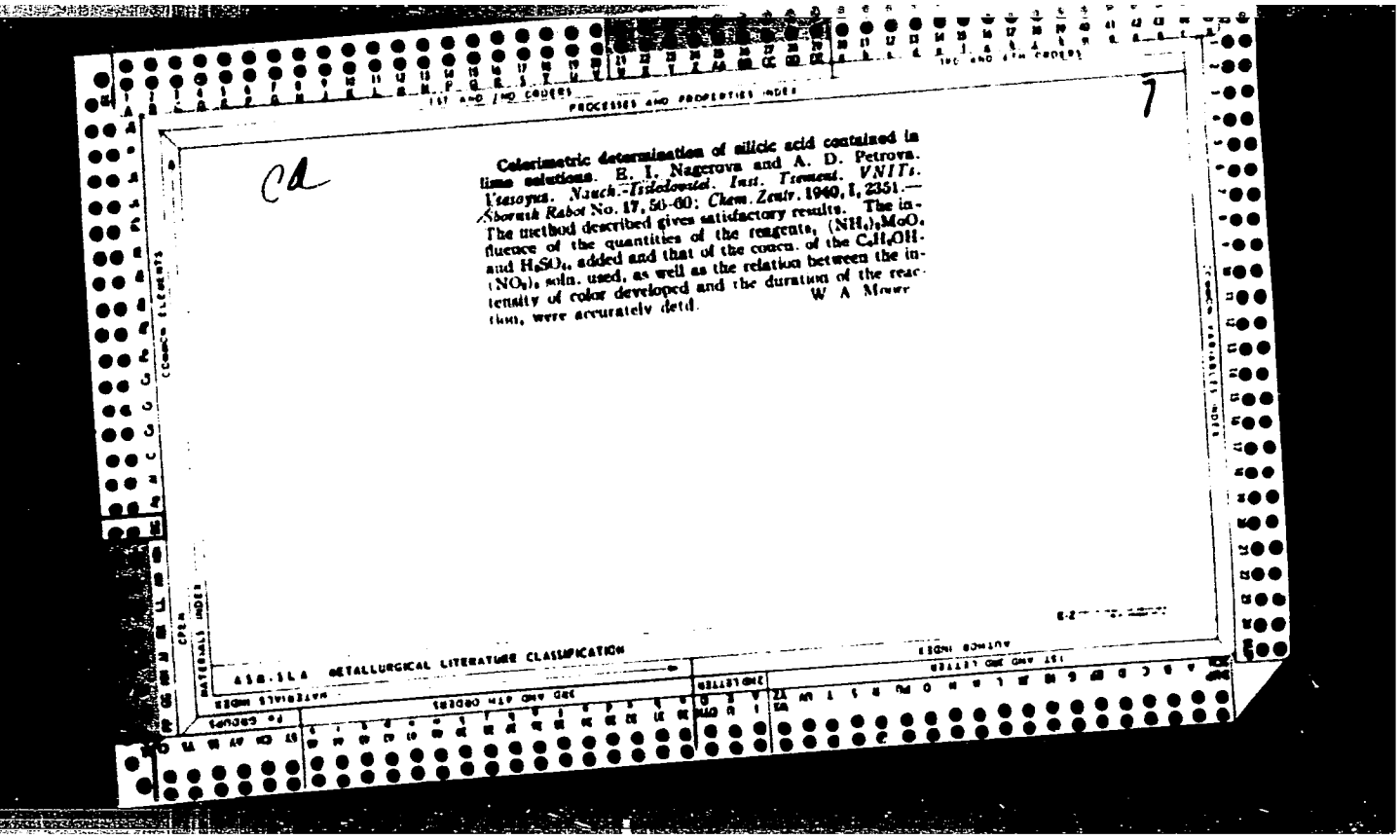
20

Polarographic determination of alkali metals in cements and cement ingredients. E. I. Nagerova. *Gosudarst. Vsesoyuz. Inst. Proektirovaniya Predpriyatii Tsement. Prom., Giprotse-Nauch.-Issledovatel. Raboty Tsement, Trudy* 1940, No. 1, 32-45.—The wave height of the diffusion current varies linearly with the concn. of the Na and K ions. The Ca, Mg, Al and Fe are made polarographically inert by addn. of H_3PO_4 and $(CH_3)_4NOH$, and 0.01 *N* NaCl is added to obtain a wave of sufficient height. Samples of natural silicates are fused with HF and H_2SO_4 and clinkers (cement) are fused with NH_4Cl and $CaCO_3$. The melt or the calcined residue is leached with water, filtered and an aliquot portion taken for analysis. With natural silicates take 3-5 ml. and add 0.2-0.3 ml. of

N H_3PO_4 and 10-15 ml. of 0.25 *N* $(CH_3)_4NOH$ and with clinkers and cements take 2-3 ml. and add 1-2 ml. of *N* H_3PO_4 and 5-8 ml. of 0.25 *N* $(CH_3)_4NOH$. In either case, the addn. of 1 ml. of 0.01 *N* NaCl is sufficient to give a high wave. Polarograms are made of test and standard solns. Results are calcd. from % $Na_2O = a.h_2.100.v/h_1.A$, where *a* is the content of Na_2O in the standard NaCl soln., h_1 height of standard wave, h_2 is height of wave of test soln., *v* is diln. and *A* is the sample wt. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

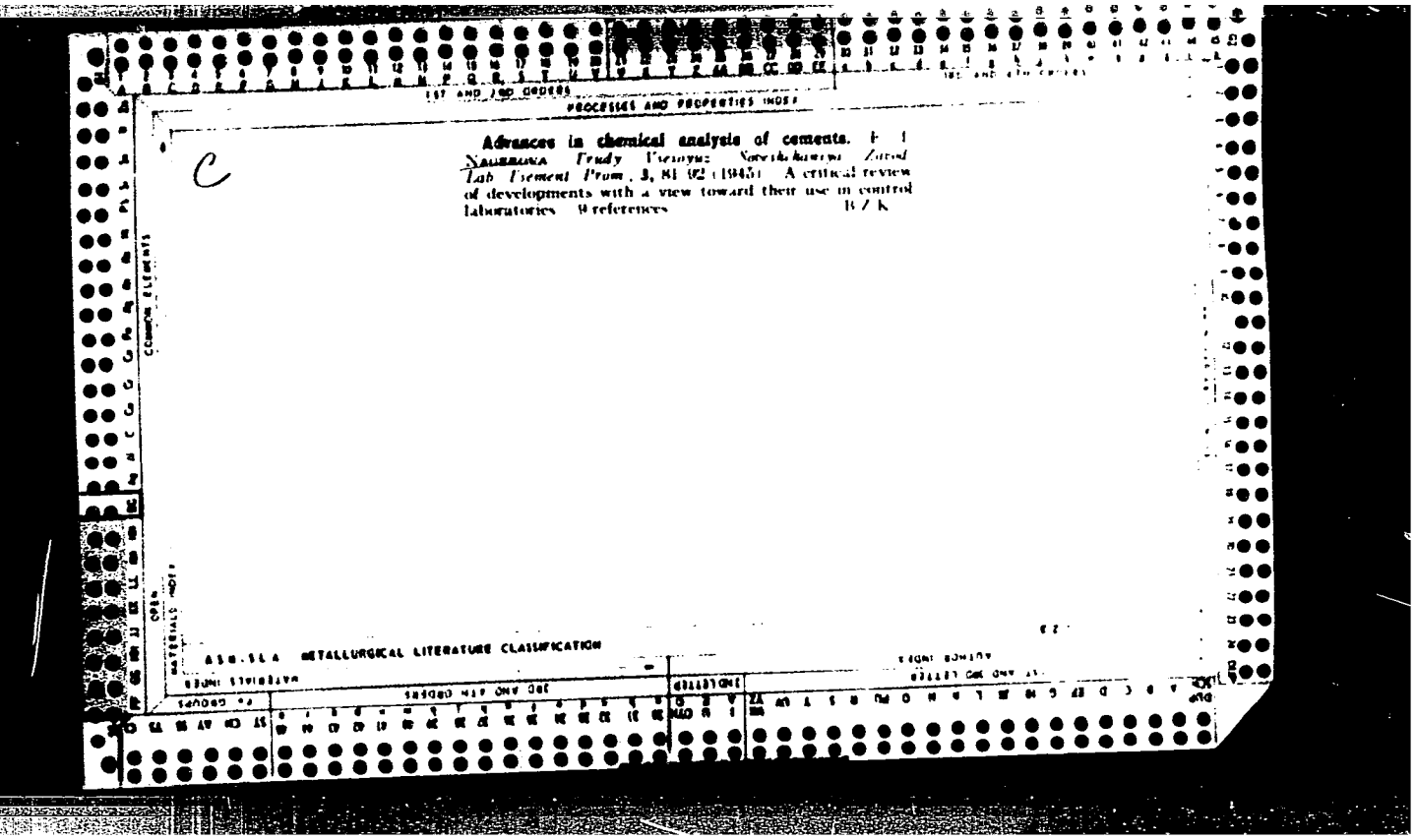




Cl

7

Colorimetric determination of silicic acid contained in lime solutions. B. I. Nagerova and A. D. Petrova. *Vsesoyus. Nauch.-Issledovatel. Inst. Tsvetmet. VNIITs. Sbornik Rabot* No. 17, 50-60; *Chem. Zentr.* 1940, I, 2351.—The method described gives satisfactory results. The influence of the quantities of the reagents, $(NH_4)_2MoO_4$ and H_2SO_4, added and that of the concn. of the C_6H_5OH-$(NO_3)_3$ soln. used, as well as the relation between the intensity of color developed and the duration of the reaction, were accurately detd. W A Mewr



ROYAK, S.M., dots., kand. tekhn. nauk; NAGEROVA, E.I., kand. tekhn. nauk.

Solid solutions of magnesium in calcium silicates. Trudy NIITSement no.10:39-47 '57. (MIRA 10:12)
(Cement) (Magnesium) (Calcium silicates)

AUTHORS: Myshlyayeva, V.V., Nagerova, E.I., Candidates of Technical Sciences, and Lukina, M.N., Engineer

TITLE: Methods of Chemical Analyses of Portland Cements (Metody khimicheskogo analiza portlandtsementov). Revision of GOST-Standards 5382-50 (K peresmotru GOST 5382-50)

PERIODICAL: Standartizatsiya, 1959, Nr 4, pp 73 - 75 (USSR)

ABSTRACT: The revision of existing standards for methods of chemical analyses of Portland cements was necessary in order to include into the standards classical methods of analysis specified in practical use as well as new speed-up methods, such as trilonometric determination of magnesium oxide and photocolorimetric determination of ferric and manganese oxide. The proposed modifications and additions to classical methods will provide data of higher accuracy relating to the chemical composition of Portland cements. The new speed-up methods will enable cement workers to control and evaluate rapidly the yield quality.

ASSOCIATION: NIITsement

1. Cement--Chemical analysis 2. Chemical analysis--Standards

Card 1/1

NAGEROVA, E.I.

15(6) SOV/101-59-2-6/13

AUTHORS: Royak, S.M., Nagerova, E.I. and Korniyenko, G.G.

TITLE: Investigation of the Phase Formation of Aluminous Cement by Chemical Methods

PERIODICAL: Tsement, 1959, Nr 2, pp 22-24 (USSR)

ABSTRACT: The authors state that the best properties of aluminous cement are its strength at the initial periods of hardening, and radiation of heat. These features depend upon the mineralogical composition of the high-consistency aluminous slag. Such cement is obtainable by means of smelting or - caking. The mineralogical composition of cement is usually determined by means of microscopical analysis. But, with cement produced by the caking method, such examination meets with some difficulties, caused by the fine-crystalline structure of the calcinated material. Consequently, a chemical method must be used for the determination of basic components of aluminous cement. The bicalcium silicate can be determined, in accordance

Card 1/2

Investigation of the Phase Formation of Aluminous Cement by Chemical Methods

with a method proposed by E.I. Nagerova, by using a 5% aqueous solution of boric acid. The practical result was that calcium aluminates dissolve in the 2 - 5% solution of sodium carbonate in about 1 hour time at a temperature of 70 - 90°. The authors quote experiments made at the Pashiyskiy tsementnyy zavod (Pashiya Cement Plant) with 20 samples of aluminous cement of various mineralogic composition. Summarizing, the authors state that chemical methods of determination of the content of bicalcium silicate, helenite and even calcium aluminates are more conclusive than the microscopic methods. However, a joint use of the chemical and microscopic methods will insure an exact characteristic of the phase formation of aluminous cement. This formation may be determined by the usual methods of silicate analysis, with the application of suitable reagents. There are 2 tables.

MYSHLYAYEVA, V.V., kand.tekhn.nauk; NAGEROVA, E.I., kand.tekhn.nauk;
OSOKINA, T.A., kand.tekhn.nauk

Developing methods of detecting boron and flourine in cement materials. (MIRA 14:5)
Nauch.soob.NIITSementa no.8:23-28 '60.
(Boron--Analysis) (Flourine--Analysis) (Cement)

MYSHLYAYEVA, V.V., kand.tekhn.nauk; NAGEROVA, E.I., kand.tekhn. nauk

Methods of analyzing barytic and boron-containing cements and materials. Nauch. soob. NIITSementa no.11:39-42 '61. (MIRA 15:2)

(Cement--Analysis)
(Materials--Analysis)

NAGEVICH, O.

Natural History - Study and Teaching

Michurin's ranks are growing. Klub 2. No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

NA[illegible]EVICH, [illegible].V.; KHO[illegible], [illegible], inzhener

Honored builder of [illegible]. Transp. [illegible]
16-17 F '65. (MIRA [illegible])

1. Zamestitel' nachal'nika [illegible] [illegible] (for Na[illegible]evich).

ACCESSION NR: AR4015550 S/0137/63/000/011/I075/I075

SOURCE: RZh. Metallurgiya, Abs. 11I526

AUTHOR: Shelestenko, L.P.; Nagevich, Yu.M.

TITLE: Mechanical properties of D1-T, D16-T, AMr-61, and D16A g/k aluminum alloys

CITED SOURCE: Sb. nauchn. soobshch. Vses. n.-i. in-ta transp. str-va. M., 1962, 6-23

TOPIC TAGS: aluminum alloy

TRANSLATION: The authors studied the mechanical properties of the D1-T, D16-T, AMr-61, and D16Ag/k alloys with extension (E) and compression (C) and determined the degree of variation of mechanical properties depending on the type of profile, direction of rolling, sheet thickness, and position of the sample with respect to the profile cross-section and length. The primary E and C diagrams of the alloys investigated do not have flow areas. In comparison with the E diagrams, the C diagrams have much more developed transition curves from σ_p to $\sigma_{0.2}$. For the

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ACCESSION NR: AR4015550

D1-T, D16-T, and AMr-61 alloys, the ratios of the mean statistical values of σ_p to $\sigma_{0.2}$, equal to 0.82; 0.86; 0.78 respectively, as well as the ratios of the mean statistical values of $\sigma_{0.2}$ to σ_b, equal respectively to 0.79, 0.77, and 0.78 approach the analogous values for carbon steels. The values of the mean statistical δ for the D1-T, D16-T, and AMr-61 alloys are equal to 11.3; 10.8 and 10.7%, which is close to the GOST standard values. The mean statistical values of E for extension and compression for the D1-t, D16-T, and AMr-61 alloys are close to each other (737,770, and 767 tons/cm^2, respectively) and about 3 times less than for steel. The mechanical properties of D16Ag/k sheets along and across the direction of rolling are practically the same, which advantageously distinguishes the alloy from carbon and low-alloy steels. The values of σ and $\sigma_{0.2}$ of the D1-T, D16-T, and AMr-61 alloys with C is considerably less than with

E. E. Kadaner.

DATE ACQ: 09Dec63 SUB CODE: ML ENCL: 00

Card 2/2

S/839/62/000/000/003/004
E193/E383

AUTHORS: Shelestenko, L.P., Candidate of Technical Sciences and Nagevich, Yu.M., Engineer

TITLE: A study of the physicomechanical properties of aluminium-base alloys Д1-Т (D1-T), Д16-Т (D16-T), АМг61 (AMg61) and Д16-А(г/к) (D16-A(g/k))

SOURCE: Stroitel'nyye konstruktsii iz alyuminiyevykh splavov. Ed. by S. V. Taranovskiy. Moscow, Gosstroyizdat, 1962. 57 - 77

TEXT: In the design calculations of aluminium-alloy structures it is usual to assume that the pertinent mechanical properties of the alloys when in tension and compression are similar. The object of the present investigation was to check the validity of this assumption, to provide accurate data on some more important properties such as the limit of proportionality and the yield point and to establish the degree of uniformity of various semifinished, wrought products in respect of their mechanical properties. To this end, a large number of tensile and compressive stress/strain diagrams were obtained for the alloys studied. The

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A study of the ....

standard test pieces were cut from a wide range of semifinished products (profiles, sheet) allowing also - when appropriate - for the directional properties of the alloys. Alloy D16-A(g/k) was tested mainly to study the effect of the sheet thickness on its mechanical properties. The results of statistical analysis of the experimental data obtained can be summarized as follows. 1) Alloys D1-T, D16-T and AMg-61 have a sufficiently high capacity to carry both the tensile and compressive loads to meet the requirements of materials for constructions such as bridge spans, etc. 2) The proportionality limit/0.2% proof stress ratio ($\sigma_p/\sigma_{0.2}$) in tension for alloys D1-T, D16-T and AMg-61 is, respectively, 0.82, 0.86 and 0.78, the corresponding figures for the $\sigma_{0.2}$/UTS ratio being 0.79, 0.77 and 0.73. 3) Alloys D1-T, D16-T and AMg-61 have, respectively, elongation of 11.31, 10.8 and 10.7% and elastic modulus (in tension) of 737, 770 and 766 t/cm^2. 4) The compressive stress/strain diamgrams differ considerably from those obtained in tension in that the transition from σ_p to $\sigma_{0.2}$ in the former is more gradual than in the latter. 5) The values of $\sigma_{0.2}$ and,

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E193/E383

A study of the ....

particularly, σ_p of the alloys studied are much lower in compression than in tension, the $\sigma_{p\,(compression)}/\sigma_{p(tension)}$ ratio for alloys D1-T, D16-T and AMg-61 being, respectively, 0.86, 0.76 and 0.61, the corresponding values of $\sigma_{0.2(compression)}/\sigma_{0.2(tension)}$ being 0.93, 0.89 and 0.79. 6) The coefficients of uniformity of the mechanical properties, defined as the ratio of the minimum probable to the nominal value of $\sigma_{0.2}$, of alloys D16-T and AMg-61 are 0.8 and 0.85, respectively. There are 8 figures and 7 tables.

Card 3/3

MAGNYICH, Yu.M., inzh.

Strength of materials of some pressed sections made of D1-T, L16-T and Amg-6 aluminum alloys. Trudy TSNIIS no.46:104-112 '62. (MIRA 17:9)

(Beams and girders) (Aluminum alloys)

L 54520-65 EWT(m)/EPA(s)-2/EPF(c)/T/EWP(j)/EPR Pc-4/Pr-4/Ps-4/Pt-7 WW/RM

ACCESSION NR: AP5018125 UR/0097/64/000/012/0532/0535 36 B

AUTHOR: Berg, O. Ya. (Doctor of technical sciences); Nagevich, Yu. M. (Engineer) 13

TITLE: The mechanical properties of large-diameter fiberglass reinforcing rods

SOURCE: Beton i zhelezobeton, no. 12, 1964, 532-535

TOPIC TAGS: fiberglass, structural mineral product, solid mechanical property

Abstract: The article summarizes the results of tests run by the Central Scientific-Research Institute of Construction (under the State Production Committee on Transport Construction), in collaboration with the Plastics Institute of the Academy of Sciences USSR; the test materials were groups of fiberglass rods 5, 11, 22 and 28 mm in diameter.

The following conclusions were reached: (1) the strength of fiberglass reinforcing rods is reduced with increase in diameter: specifically, from 135,000 to 5,300 kg/cm^2 for diameter increase of 5 to 28 mm. The degree of uniformity is similarly reduced: from 0.87 to 0.75, for diameter increase of 5 to 22 mm; (2) the tests showed the stress-deformation function to be linear; the elasticity moduli for the 5-, 11-, 22- and 28-mm rods were 487, 384, 380 and 360 t/cm^2; (3) long-term strength of the rods is about 0.65 times the ultimate strength as determined from short-term experiments;

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L 54520-65

ACCESSION NR: AP5018125

(4) limiting values of strength for the 11- and 22-mm rods were determined for $2 \cdot 10^6$ cycles of load shifts, the asymmetry factors being 0.85, 0.75 and 0.5. For the 11-mm rods the values were 49.7, 41.8 and 27.1 kg/mm^2, respectively--- that is, vibrational strength dimished by 45%. For the 22-mm rods, for asymmetry factor 0.75, the limit was lower than for a 1-mm rod (namely, 27.1 kg/mm^2). Orig. art. has1 figure, 5 graphs, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MT, ME

NO REF SOV: 000 OTHER: 000 JPRS

Card 2/2

L 8125-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWP(v)/EWP(j)/T/EWP(t)/EWP(b)/EWP(k)/EWP(l)/EIC(m)

ACC NR: AP5025442 WW/EM/RM SOURCE CODE: UR/0097/65/000/009/0034/0036

AUTHORS: Berg, O. Ya. (Doctor of technical sciences, Professor); Nagevich, Yu. M. (Engineer)

ORG: none

TITLE: Some peculiarities of the destruction process of glass-plastic reinforcement

SOURCE: Beton i zhelezobeton, no. 9, 1965, 34-36

TOPIC TAGS: construction material, glass fiber, material strength, ultrasonic device/ PIK 7 ultrasonic device

ABSTRACT: Ultrasonic vibration soundings were used in the process of testing glass-reinforced plastics to determine characteristics of progressive failure stages of these materials and the relationship of the failure process to the ultimate strength of the glass-reinforced plastic. Observations of the strength variation in rods 11 and 22 mm in diameter, loaded for a period of up to one year, showed that the ultimate strength is characterized by stresses which are 62.5 and 65% respectively of the strength found in short term tests (see Fig. 1). The ultrasonic testing featured an impulse ultrasonic device PIK-7. This device allows the determination of the time of propagation of vibrations in a glass-reinforced plastic rod. Results of longitudinal deformation measurements verified an earlier conclusion that up to

Card 1/3 UDC: 677.521:691.32

L 8125-66

ACC NR: AP5025442

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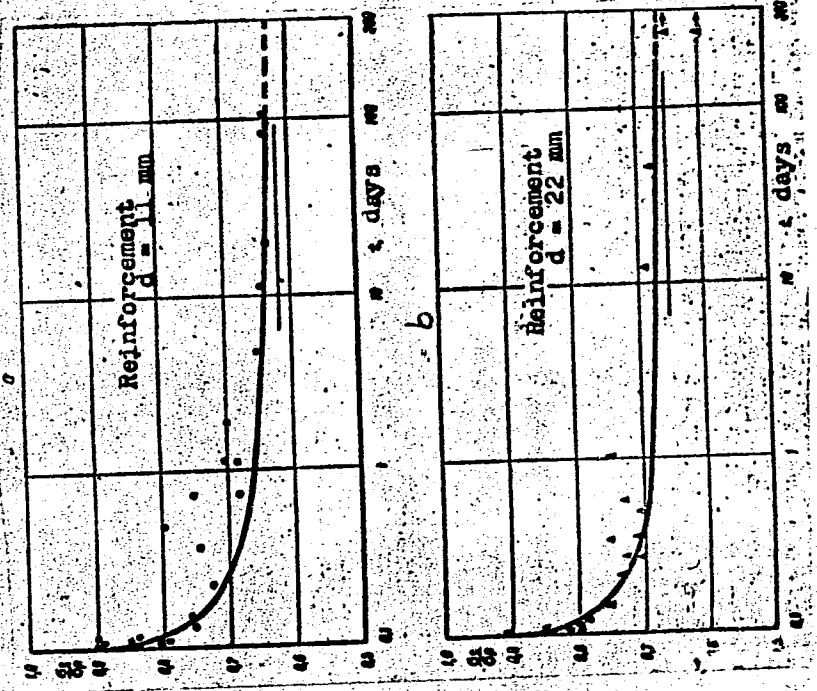

Fig. 1. Curves of the failure of glass-plastic reinforcement under prolonged loading: a- 11-mm diameter bar; b- 22-mm diameter bar

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L 8125-66
ACC NR: AP5025442

the moment of failure a linear stress and strain relationship persists. Curves of the variation of the time of propagation of ultrasonic waves along the test rods are presented and discussed. Changes in the structure of the material under loading are accompanied by a deviation from a nominal value of the propagation velocity of the ultrasonic impulse. Several possibilities are advanced to explain this phenomenon in terms of changes in the fabric of the glass plastic. The authors recommend that this testing method be used to load-test different glass-reinforced plastic materials formed with various fillers and binders and made by diverse methods. Orig. art. has: 2 figures.

SUB CODE: MT/ SUBM DATE: none/ ORIG REF: 002

Card 3/3

BULGARIA/Morphology of Man and Animals - Vascular System. S-5

Abs Jour : Ref Zhur - Biol., No 6, 1958, 26503

Author : Nagi, D.
Inst :
Title : Histological Changes in the Intramural Dilatations Accompanying Coarctation of the Aorta.

Orig Pub : Khirurgiya (B"lg), 1957, 10, No 3, 193-199.

Abstract : No abstract.

Card 1/1

2/

NAGI, I.

"Investigation of the Efficiency in a Steering Mechanism of a Caterpillar Tractor." Cand Tech Sci, Khar'kov Polytechnic Inst, Khar'kov 1954. (RZhMekh, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12).

NAGIB, Akhmed; FIRSOVA, P.P. (Moskva)

Methodology for performing bronchospirometry. Eksper. khir. i anest. 8 no.4:31-33 Jl-Ag '63. (MIRA 17:5)

BIBERGAL', Leonid Anatol'yevich; NAGI, Ervin Alekseyevich; SOLOMONIK, Samuil Solomonovich; KRANIKHFEL'D, L.I., red.

[Cables and wires for electronic apparatus] Kabeli i provoda dlia elektronnoi apparatury. Moskva, Energiia, 1964. 255 p. (MIRA 17:9)

[illegible]IB, A.; PEGLATNIKOVA, Ye.A.

Separate bronchopleurotomy in surgery of [illegible]. Khirurgiia 39 no.12:66-71 D '63 (MIRA 17:2)

1. Iz Instituta khirurgii imeni A.V. Vishnevskogo [illegible] deystvitel'nyy chlen AMN SSSR prof. A.A. Vishnevskiy) AMN SSSR.

KOPVILLEM, U.Kh.; NAGIBAROV, V.R.

Theory of the shape of optical and microwave absorption lines.
Fiz. tver. tela 5 no.10:2940-2950 O '63. (MIRA 16:11)

1. Fiziko-tekhnicheskiy institut AN SSSR, Kazan'.

KOPVILLEM, U.Kh.; MAGIBAROV, V.R.

Light echo on paramagnetic crystals. Fiz. met. i metalloved. 15 no.2:313-315 F '63. (MIRA 16:4)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.
(Metal crystals—Optical properties)
(Paramagnetism)

ACCESSION NR: AP4009125 S/0056/63/045/006/2006/2008

AUTHOR: Nagibarov, V. R.; Kopvillem, U. Kh.

TITLE: Optoacoustic maser effect

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 2006-2008

TOPIC TAGS: maser, optoacoustic maser, multiquantum maser, hypersonic vibration, anharmonic vibration, small strain measurement, millimeter wave, submillimeter wave

ABSTRACT: It is shown that in a maser system in which the working process involves the annihilation of an electromagnetic quantum at one frequency, the emission of a quantum at a different frequency and the creation of a quantum of potential energy, it is possible under suitable conditions to generate monochromatic quanta by using the energy of the optical pump. The advantages of this multiquantum maser over single-quantum ones are: (1) direct production of phonons from photons; (2) the effect occurs for normal level populations,

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ACCESSION NR: AP4009125

determined by the Boltzmann factor, (3) the effect can be observed at moderate temperatures of the working medium, (4) it is a very promising mechanism for opening up the millimeter and submillimeter regions of the electromagnetic spectrum and for the production of hypersonic vibrations and microwave frequencies (up to the Debye frequency). The condition for self excitation of hypersonic vibration of Al_2O_3 doped with Cr^{3+} and placed in a strong magnetic field is derived by way of an example. Possible applications of the device are investigations of the Debye spectrum of crystals and anharmonic vibrations of solids, and measurements of very small deformations. Orig. art. has: 4 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute, Kazan' Branch, Academy of Sciences SSSR)

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ACCESSION NR: AP4019864 S/0181/64/006/003/0940/0941

AUTHORS: Nagibarov, V. R.; Kopvillem, U. Kh.

TITLE: Dynamic de-excitation of phonons

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 940-941

TOPIC TAGS: phonon, optical acoustical transition; crystal lattice cooling, light polarization luminescence

ABSTRACT: Two-quanta optical-acoustical transitions make possible selective cooling of the lattice relative to phonons of definite frequency. Such transitions may be used as well for cooling the lattice as a whole. The cooling process is: a system of weakly interacting particles with a discrete energy spectrum $E_1 \leqslant E_2 \leqslant E_3$ is irradiated by monochromatic light having a frequency $\nu_0 < h^{-1}(E_3-E_1)$, where h is Planck's constant. If the polarization of light is such that the optic transition $E_1 \leftrightarrow E_3$ is forbidden by selection rules and the transition $E_1 \leftrightarrow E_2$ is allowed for acoustical vibrations, there will then occur two-quanta optical-acoustical transitions $E_1 \rightarrow E_3$ with absorption of phonons $h\nu_\varphi = (E_3-E_1)-h\nu_0$.

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ACCESSION NR: AP4019864

As particles return to the ground state E_1, this lattice energy will be de-excited by the optical quantum $h\nu_{31}$ ($h\nu_{ij} = E_i - E_j$). From this the authors derive an expression for rate of selective de-excitation of phonons having a frequency of ν_φ:

$$\frac{dQ}{dt} = h\nu_\varphi \cdot N_0 W_{1\to 3} \alpha A_{32} w_{21} \Delta^{-1}.$$

where Q is energy, t is time, N_0 the number of active particles per unit volume, W the probability of induced two-quanta transition, A the probability of spontaneous radiation, w the probability of transitions due to thermal vibration of the lattice, and $\alpha = 1 + \frac{A_{31}}{A_{32}}$. In order for lattice cooling to be effective in the frequency interval ν_φ, it is necessary that the rate of energy de-excitation from this interval exceed the energy influx in the interval through anharmonic interactions. Orig. art. has: 4 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR (Physico-technical Institute, Kazan Branch AN SSSR)

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ACCESSION NR: AP4028468 S/0181/64/006/004/1251/1253

AUTHORS: Kopvillem, U. Kh.; Golenishchev-Kutuzov, V. A.; Nagibarov, V. R.

TITLE: Nuclear quadrupole resonance in ferroelectric domain walls

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1251-1253

TOPIC TAGS: nuclear quadrupole resonance, ferroelectric, ferroelectric domain, ultrasonic perturbation, electric field perturbation, nuclear quadrupole energy operator

ABSTRACT: Theoretical computations are made of the effect of excitation of nuclear quadrupole resonance (NQR) in the domain walls of ferro- and antiferroelectrics by application of ultrasonics or a variable electric field at the resonant frequency. The variation of the electric field gradient inside the domain wall at the quadrupole nucleus is due to the shift of the wall relative to the nucleus (electric field effect) or of the nucleus relative to the wall (ultrasonic effect). These shifts have various amplitudes and at NQR frequencies are out of phase, hence the effects of ultrasonics and the electric field can be considered separately. It is assumed that the relative shift of nuclei and walls takes place

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in a direction x perpendicular to the domain wall. The nuclear quadrupole energy operator takes the form:

$$R\mathcal{H}^{(i)} = \frac{1}{4}\alpha\left(I_z I_\pm + I_\pm I_z\right)(1-\gamma)\langle v_{zx}\rangle, \quad \alpha = \frac{\xi_i Q}{I(2I-1)}.$$

where ξ is the number of charges on particle i, e is electron charge, Q is the quadrupole moment of nucleus i, γ is the anti-shielding factor, $\langle v_{zx}\rangle$ is the average amplitude of variation of the electric field gradient component v_{zx}, I is the nuclear spin, and z is the direction of spontaneous polarization. For 90° walls with perturbation by an electric field of amplitude E,

$$\langle v_{zx}\rangle = (4\sigma^2 v_{zx})^{-1} M_{zx}\mu (E - E_0)$$

where σ is the wall thickness, E_0 is the critical field and μ is the wall "mobility". For E = 0.6,

$$\gamma\langle v_{zx}\rangle \sim 10^{13}.$$

ACCESSION NR: AP4028468

With a relative deformation u_{xx} due to ultrasonic perturbation,

$$m_0\langle v_{xx}\rangle = \frac{M_0}{\Omega} u_{xx}$$

Then for $u_{xx} = 10^{-4}$

$$\tau\langle v_{xx}\rangle \sim 10^{19}$$

(all values in cgs esu). Orig. art. has: 3 equations.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR (Institute of Physics and Technology, Kazan Branch AN SSSR)

SUBMITTED: 06Dec63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 007

Card 3/3

ACCESSION NR: AP4031158 S/0056/64/046/004/1360/1362

AUTHORS: Kopwillem, U. Kh.; Nagibarov, V. R.

TITLE: Deformation cooling

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1360-1362

TOPIC TAGS: deformation cooling, adiabatic strain removal, cooling by strain removal, spin system temperature drop, degenerate level splitting, electron spin polarization, nuclear spin polarization, excited particle system cooling

ABSTRACT: It is shown that when a system of interacting particles with orbital and spin magnetism and with electric quadrupole moments (a deformed crystal) is subjected to splitting of its degenerate levels (by adiabatic removal of the strain), the system becomes cooled. A formula derived in the paper and published data are used to calculate the spin-system temperature drop, which is found to be

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ACCESSION NR: AP4031158

(in °K) on the order of 1 for the ground state of Fe^{2+} in MgO, 30 for the excited state of Eu^{2+} in CaF_2, 10 for Cr^{3+} exchange pairs in Al_2O_3, and 10^{-6} and 3×10^{-4}, respectively for ^{133}Cs in metal and ^{115}In in InSb. It is shown that, unlike adiabatic demagnetization, the method of deformation cooling yields low temperatures in systems of excited particles. The possibility of using deformation cooling for the polarization of electronic and nuclear spins is also considered with Eu^{2+} in CaF_2 as an example. The feasibility of crystal cooling by deformation removal of degeneracy of nonmagnetic levels and by adiabatic removal of the electric field is also pointed out. Orig. art. has: 5 formulas.

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L 11081-65 EWT(1)/EEC(t) IJP(c)/ESD(t)

ACCESSION NR: AP4046636 S/0181/64/006/010/3150/3153

AUTHORS: Nagibarov, V. R.; Kopvillem, U. Kh.

TITLE: Raman scattering of magnons (B)

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 3150-3153

TOPIC TAGS: Raman scattering, magnon, cross relaxation, spin system interaction, multipole multipole interaction, ion phonon interaction

ABSTRACT: The authors examine the possibility of employing the mechanism of Raman scattering of magnons for the description of non-radiative energy transfer either between systems of sensitizers and acceptors or within a single system. The Raman processes are produced in this case through combined action of two-particle multipole-multipole and single-particle ion-phonon interactions, the former providing the coupling between different centers. The role of the external fields which produce the harmonic ratios are assumed in

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ACCESSION NR: AP4046636

this case by the internal field which are modulated by the lattice vibrations. Two types of interactions, between the sensitizer (or luminescence center) in the lattice and the acceptor ion in the lattice are considered, and the frequencies of the two transitions are evaluated. The numerical values of these frequencies are estimated for electric dipole-dipole interactions. The expressions obtained can be used for analogous processes in liquids. Orig. art. has: 2 figures and 4 formulas.

ASSOCIATION: Kazanskiy fiziko-tekhnicheskiy institut AN SSSR (Kazan' Physicotechnical Institute)

SUBMITTED: 14Feb64 ENCL: 00

SUB CODE: SS NR REF SOV: 007 OTHER: 009

Card 2/2

L 13783-65 EWG(j)/EWA(k)/FBD/EWT(1)/EEC(k)-2/EEC(t)/T/EEC(b)-2/EWP(k)/EWA(m)-2/
EWA(h) Pn-4/Po-4/Pf-4/Peb/P1-4/P1-4 IJP(c)/AFETR/ASD(d)/ASD(a)-5/SSD/AFWL/APGC(b)/
RAEM(a)/RAEM(1)/RAEM(c)/ESD(gs)/ESD(t) WG/JHB

ACCESSION NR: AP4044116 S/0141/64/007/003/0572/0574

AUTHOR: Nagibarov, V. R. B

TITLE: Two-quantum pulse generators using paramagnetic centers

SOURCE: IVUZ. Radiofizika, v. 7, no. 3, 1964, 572-574

TOPIC TAGS: millimeter wave generator, submillimeter generation, optical pumping, quantum generator, Raman scattering 25 21

ABSTRACT: In view of the difficulties in the development of three-level quantum amplifiers for the millimeter and submillimeter bands, the author considers the feasibility of using induced Raman emission for the generation of microwave frequencies using monochromatic optical radiation. The advantages of such a generator over three-level systems is that it can operate at moderate temperatures, since the optical-level population is low even at high temperatures. The excitation condition of such a generator is found to be

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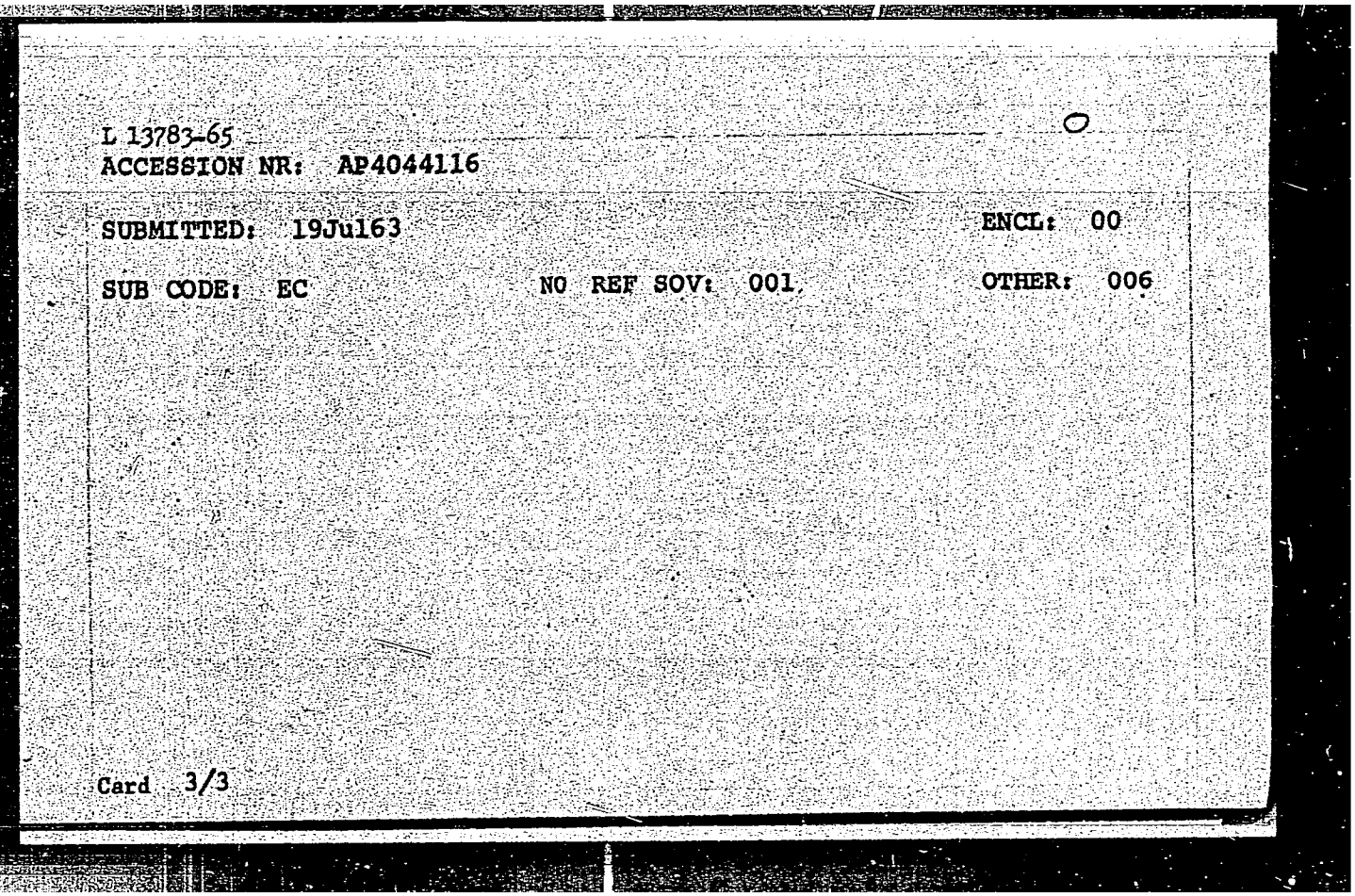
ACCESSION NR: AP4044116

$$N \geq \beta \frac{A_\alpha}{QE\Sigma} \text{ cm}^{-3}$$

where N -- number of working particles per unit volume, Q -- figure of merit of resonator, E -- intensity of the electric field of the light wave, β -- approximately the ratio of the generator line width to the optical pump line width, A_α has approximate values 10^{21}, 10^{25}, and 10^{29} for electric-dipole, mixed, and magnetic-dipole transitions, respectively. Possible realizations of such a generator for several numerical values of the parameters are discussed.
"I thank U. Kh. Kopvillem for interest and for valuable remarks."
Orig. art. has: 1 figure and 2 formulas.

ASSOCIATION: Kazanskiy fiziko-tekhnicheskiy institut AN SSSR
(Kazan Physicotechnical Institute, AN SSSR)

Card 2/3



L 13783-65

ACCESSION NR: AP4044116

SUBMITTED: 19Jul63 ENCL: 00

SUB CODE: EC NO REF SOV: 001 OTHER: 006

Card 3/3

L 38105-65 EWT(1)/T/EEC(b)-2 Pq-4/Pi-4 IJP(c)
ACCESSION NR: AP5006037 S/0141/64/007/006/1204/1205

AUTHOR: Kopvillem, U. Kh.; Nagibarov, V. R.

TITLE: Resonant broadening and energy transport in optically excited systems with discrete spectrum

SOURCE: IVUZ, Radiofizika, v. 7, no. 6, 1964, 1204-1205

TOPIC TAGS: resonance broadening, energy transport, optical excitation, optical spectrum, dipole dipole interaction, line broadening

ABSTRACT: After showing that electric dipole-dipole interactions take place in quantum-mechanical systems in the absence of diagonal matrix elements under four different conditions, the authors determine the line broadenings in some of these interactions. The following interactions are possible: a) direct dipole-dipole interaction, b) interaction via the potential energy, c) interaction via the phonon field, and d) interaction via the photon-phonon field. Interactions a) and b) can be designated as direct dipole-dipole interactions and interactions via the field of the potential-energy quanta. Interactions via the potential-energy quanta are

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L 38105-65
ACCESSION NR: AP5006037

considered, using Cr^{3+} ions in Al_2O_3 as an example, and the resonant broadening and energy transfer are calculated for this case. An estimate of $\Delta\nu \sim C \times 10^{10}$ sec^{-1} is obtained (C = particle concentration) and it is concluded that uniform line broadening can be observed under certain conditions. The first and second moments of the optical-resonance line are calculated relative to the position of the line in the absence of the interaction. It is also shown that, like in the magnetic case discussed by one of the authors earlier (Kopvillem, FTT v. 3, 1190, 1961), the lifetime of excited levels can be controlled by introducing impurities with suitable spectrum and with short longitudinal relaxation time. Orig. art. has: 3 formulas.

ASSOCIATION: Kazanskiy fiziko-tekhnicheskiy institut AN SSSR (Kazan' Physico-technical Institute, AN SSSR)

SUBMITTED: 10Mar64 ENCL: 00 SUB CODE: OP, GP

NR REF SOV: 003 OTHER: 005

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L 38105-65 EWT(1)/T/EEC(b)-2 Pq-4/Pi-4 IJP(c)
ACCESSION NR: AP5006037 S/0141/64/007/006/1204/1205

AUTHOR: Kopvillem, U. Kh.; Nugibarov, V. R.

TITLE: Resonant broadening and energy transport in optically excited systems with discrete spectrum

SOURCE: IVUZ. Radiofizika, v. 7, no. 6, 1964, 1204-1205

TOPIC TAGS: resonance broadening, energy transport, optical excitation, optical spectrum, dipole dipole interaction, line broadening

ABSTRACT: After showing that electric dipole-dipole interactions take place in quantum-mechanical systems in the absence of diagonal matrix elements under four different conditions, the authors determine the line broadenings in some of these interactions. The following interactions are possible: a) direct dipole-dipole interaction, b) interaction via the potential energy, c) interaction via the phonon field, and d) interaction via the photon-phonon field. Interactions a) and b) can be designated as direct dipole-dipole interactions and interactions via the field of the potential-energy quanta. Interactions via the potential-energy quanta are

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L 38105-65
ACCESSION NR: AP5006037

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ASSOCIATION: Kazanskiy fiziko-tekhnicheskiy institut AN SSSR (Kazan' Physico-technical Institute, AN SSSR)

SUBMITTED: 10Mar64 ENCL: 00 SUB CODE: OP, GP

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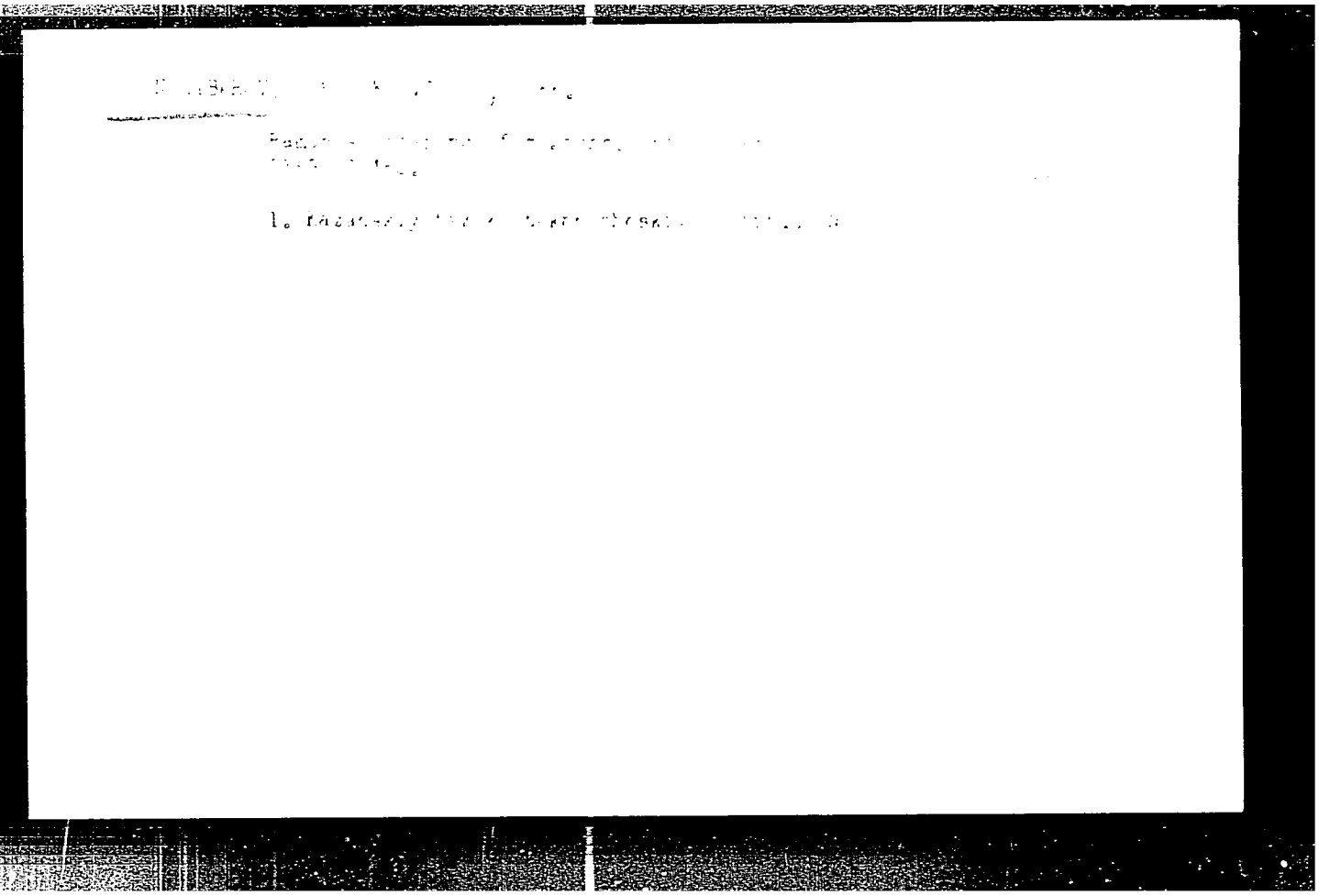

NAGIBAROV, V.R.

Two-quantum pulsed oscillators with paramagnetic centers. Izv. vys. ucheb. zav.; radiofiz. 7 no.3:572-574 '64. (MIRA 17:11)

1. Kazanskiy fiziki-tekhnicheskiy institut AN SSSR.

MAGIBAROV, V.R.

Obtaining the distribution function of dislocation deformations from the shape of the lines of electromagnetic and acoustic resonance absorption. Fiz. met. i metalloved. 18 no.6:806-810 D '64. (MIRA 18:3)

1. Kazanskiy filial fiziko-tekhnicheskogo instituta AN SSSR.

L 12052-66 EWT(1)/EWP(m)/T IJP(c)

ACC NR: AP6002653 SOURCE CODE: UR/0386/65/002/012/0529/0533

AUTHOR: Kopvillem, U. Kh.; Nagibarov, V. R.

ORG: Kazan' Physicotechnical Institute, Academy of Sciences SSSR (Kazanskiy fiziko-tekhnicheskiy institute Akademii nauk SSSR

TITLE: Inertial echo and coherent gravitational waves

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 12, 1965, 529-533

TOPIC TAGS: gravitation wave, gravitation effect, graviton, laser application

ABSTRACT: In view of the universally recognized fact that one of the most promising experimental verifications of general relativity theory is the detection of gravitational waves, the authors consider new physical phenomena -- inertial (or gravitonic) induction and echo -- which in their opinion can be used for generation and reception of coherent gravitational waves (CGW) in a narrow band of optical frequencies under laboratory conditions. Numerical estimates show that the proposed experimental scheme on the detection of CGW can be realized with present-day technical means. The new phenomena are in fact the graviton analogs of the inertial induction and echo, which follow from the analogy between a weak gravitational field and the electric field and should apparently exist along with photon induc-

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